

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) ~~In a network of stations connected to a shared channel, each station having a transmitter and a receiver, a method of operating the station comprising:~~
~~transmitting data across a plurality of different connections between any of a plurality of transmitters and any of a plurality of receivers;~~
~~using a plurality of carriers to transmit data between a transmitter and a receiver;~~
The method of claim 10, further comprising adapting connections between particular pairs of transmitter and receiver to establish a data rate for each carrier of the channel based on characteristics of each carrier of the channel for the connection between a particular pair of transmitter and receiver, wherein the data rate established for at least some carriers for at least one pair differs from the data rate established for the same carriers for at least one other pair, and wherein the differences in data rate are represented in the channel map.
2. (Original) The method of claim 1, wherein adapting comprises:
receiving a channel estimation request in a frame from the transmitter over the channel;
determining from the frame the characteristics of the channel for the connection and
generating channel information from the determined channel characteristics; and
returning, in a channel estimation response to the transmitter, the channel information so that the channel information can be used by the transmitter in transmissions to the receiver for the connection.

3. (Previously Presented) The method of claim 1 comprising:

sending a channel estimation request to the receiver to obtain channel information for improving delivery of subsequent communications with the receiver; and receiving the channel information in a channel estimation response from the receiver.

4. (Original) The method of claim 1, wherein the connection is an existing connection and wherein adapting is repeated after a predetermined timeout.

5. (Original) The method of claim 1, wherein adapting occurs during a frame transmission recovery.

6. (Original) The method of claim 1, wherein the connection is an existing connection and adapting is repeated in response to an indication from the receiver.

7. (Original) The method of claim 6, wherein the indication is interpreted by the transmitter as a recommendation to perform adapting due to a change in number of bit errors occurring in transmissions from the transmitter to the receiver as detected by the receiver.

8. (Original) The method of claim 1, wherein the data rate is a maximum data rate.

9. (Cancelled)

10. (Previously Presented) In a network of stations, a method of operating a station comprises:

transmitting data across a plurality of different connections between any of a plurality of transmitters and any of a plurality of receivers;

using a plurality of carriers to transmit data between a transmitter and a receiver;

maintaining, for a connection over a channel between a transmitter in the station and a receiver in another station, a channel map provided by the receiver based on characteristics of the channel for the connection and having an associated channel map index;

having the transmitter use the channel map to encode and modulate frame data in a data frame for transmission over the channel to the receiver, wherein the channel map provides for the encoding and modulating for at least some carriers for at least one pair to be different from that used for the same carriers for at least one other pair and

having the transmitter send the associated channel map index in the data frame to identify to the receiver the channel map used by the transmitter for encoding and modulating frame data in the data frame.

11. (Original) The method of claim 10, wherein the frame includes a frame control field that is observable by substantially all of the stations in the network and the frame control field includes the associated channel map index.

12. (Original) The method of claim 10, wherein the channel map index can be the same as that used by another receiver.

13. (Original) The method of claim 10, wherein the channel is a power line.

14. (Original) The method of claim 10, wherein using comprises modulating the frame onto OFDM symbols.

15-20. (Cancelled)